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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,207	12/26/2001	Ronald A. Greinke	P-1051	1398

7590

05/08/2003

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EXAMINER

BOSS, WENDY L

ART UNIT

PAPER NUMBER

1775

DATE MAILED: 05/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/027,207

Applicant(s)

GREINKE ET AL.

Examiner

Wendy Boss

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-21, 28 and 32-34 is/are allowed.
- 6) ☒ Claim(s) 1-9, 22-27, 29-31 and 35-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6 and 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S.

Patent No. 4,162,078 (Cox).

Cox discloses a flexible graphite sheet article, the sheet article containing oil (see column 6, lines 19-32). Cox further discloses that the oil may be a mineral oil, vegetable oil, synthetic oil, edible oil, animal oil, or a mixture (see column 6, lines 19-22). The reference also discloses that the oil is present in an amount of 30% by weight (see column 6, lines 19-22), which is within applicants' claimed ranges.

3. Claims 1, 2, 4, 5 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S.

Patent No. 4,256,806 (Snyder).

Snyder discloses a flexible graphite sheet article, the sheet article containing oil (see column 1, lines 57-68; and column 2, line 47 through column 3, line 6). Snyder further discloses that the oil may be a mineral oil, vegetable oil, synthetic oil, edible oil, animal oil, or a mixture (see column 3, lines 1-6). The reference also discloses that the oil is present in an amount of 28% by weight (see column 3, lines 61-68), which is within applicants' claimed ranges. At

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column 2, lines 64-67, Snyder teaches that the oil has a viscosity of 60,000 centistokes or less, which appears to encompass applicants' claimed range.

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by CN 1275592.

The reference discloses a flexible graphite sheet article that contains oil (see English abstract).

5. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by KR 9406238.

The reference discloses a flexible graphite sheet article that contains oil (see English abstract). The reference further discloses that the oil may be vegetable oil as recited in claim 2.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3, 6-9 and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,162,078 (Cox) in view of U.S. Patent No. 6,017,857 (Heimann et al.).

Cox discloses a flexible graphite sheet article as shown above in paragraph number 2.

The reference does not disclose that the oil is mineral oil, ester type oil, or alkylated benzene; however, it is disclosed that the oil may be synthetic oil or silicone (see column 3, lines 29-32). Attention is directed to column 5, lines 34-38 of Heimann, which teaches that mineral oils, ester type oils, and alkylated aromatics may be used interchangeably with synthetic oils. Such a teaching would have motivated one having ordinary skill in the art to substitute mineral oil, ester

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type oil, or any alkylated aromatic for the synthetic oil disclosed by Cox. Cox also does not necessarily disclose the thickness of the graphite sheet; however, it is within the level of one having ordinary skill in the art to vary the thickness, depending on the size of the gap to be filled with the material. The reference also does not disclose the viscosity of the oil used; however, it is within the level of one having ordinary skill in the art to vary the viscosity.

8. Claims 1, 6, 7, 9 and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,256,806 (Snyder) in view of U.S. Patent No. 6,017,857 (Heimann et al.).

Snyder discloses a flexible graphite sheet as shown above in paragraph number 3. The reference does not disclose that the oil is mineral oil, ester type oil, or alkylated benzene; however, it is disclosed that the oil may be a silicone oil (see column 3, lines 1-6). Attention is directed to column 5, lines 34-38 of Heimann, which teaches that mineral oils, ester type oils, and alkylated aromatics may be used interchangeably with silicone oils. Such a teaching would have motivated one having ordinary skill in the art to substitute mineral oil, ester type oil, or any alkylated aromatic for the synthetic oil disclosed by Cox. Cox also does not necessarily disclose the thickness of the graphite sheet; however, it is within the level of one having ordinary skill in the art to vary the thickness, depending on the size of the gap to be filled with the material.

9. Claims 22-27 and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over KR 9406238 in view of U.S. Patent No. 6,017,857 (Heimann et al.).

The reference discloses a process comprising providing a flexible graphite material, and providing an oil; and contacting the oil with the graphite sheet (see Abstract). The reference does not specifically disclose that a certain percentage of the oil is absorbed into the material; however, absent evidence to the contrary, from 2-75% of the oil is absorbed into the material

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during the heat treatment. The reference also does not disclose that the oil is mineral oil, ester type oil, or alkylated benzene; however, it is disclosed that the oil may be a synthetic oil such as mobile oil (see Abstract). Attention is directed to column 5, lines 34-38 of Heimann, which teaches that mineral oils, ester type oils, and alkylated aromatics may be used interchangeably with synthetic oils. Such a teaching would have motivated one having ordinary skill in the art to substitute mineral oil, ester type oil, or any alkylated aromatic for the synthetic oil disclosed by KR 9406238.

Allowable Subject Matter

10. Claims 10-21, 28 and 32-34 are allowed.
11. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not disclose a thermal management system or a method comprising a heat source; a thermal interface which comprises a flexible graphite sheet that contains oil being in operative communication with the heat source; and a heat dissipating component having a heat collection surface and heat dissipation surface.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wendy Boss whose telephone number is 703-306-5922. The examiner can normally be reached on M-Th 8:30a-6:00p; 2nd F 8:30a-5:00p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on 703-308-3822.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Wendy Boss
May 5, 2003


DEBORAH JONES
SUPERVISORY PATENT EXAMINER